

REMARKS

The Office Action dated June 15, 2005 has been carefully considered together with the cited references. In view of the foregoing amendments and the following remarks, it is submitted that the application is now in condition for allowance.

The Office Action cited new art, and withdrew the allowances of claims 7 and 8 that were allowed in the first Office Action. The Office Action further rejected claim 7 under 35 U.S.C. § 112, second paragraph, as being incomplete for allegedly omitting a step. This rejection is believed to have been overcome by the amendments made to claim 7.

The Office Action further rejected the pending claims under 35 U.S.C. § 102 and 103 based on U.S. Patent 5,950,441 to Mahableshwarkar et al., U.S. Patent 5,677,500 to Ackerley et al., and U.S. Patent 5,193,406 to Wolf et al.

Applicant submits that the claims as amended should be allowable over the cited references. The claims as amended all require the monitoring of the actual liquid flow rate and comparing it to a calculated liquid flow rate, and generating a malfunction signal if the deviation exceeds a maximum allowable percentage error. Claims 8-13 further require the monitoring of an actual air flow rate, comparing the actual flow rate with a calculated air flow rate, and generating a malfunction signal if they differ by more than a maximum allowable percentage error. These limitations are not taught or suggested by the cited references.

Specifically, Mahableshwarkar, the primary reference cited by the Office Action, does not teach or suggest the concept of using the deviation between the actual liquid flow rate and the calculated liquid flow rate as an indication of whether the spray nozzle is malfunctioning. Moreover, Mahableshwarkar does not teach or suggest comparing the actual air flow rate with a calculated air flow rate. In this regard, the flowchart in FIG. 6 of the Mahableshwarkar patent shows that it is the measured air pressure, not the actual air flow rate, that is compared.

The Office Action cited the Ackerley patent for its teaching of the generation of an error signal. That signal, however, is a “faulty valve” signal as recognized by the Office Action, and has nothing to do with the particular type of liquid flow in the Mahableshwarkar system. Thus, it would not have been obvious to one skilled in the art to attempt to combine the two references. Moreover, the “faulty valve” signal is totally different from a signal that is generated based on a deviation in an actual liquid flow signal from a calculated liquid flow

rate. As a result, even if the Mahableshwarkar and Ackerley references are somehow combined, the combination would still not reach the claimed invention.

The Wolf reference discloses a method for detecting erosion or plugging of a nozzle system by determining a liquid flow parameter related to liquid flow. The Wolf reference, however, is directed to comparing the change of the nozzle condition over the passage of time and does not teach or suggest the monitoring of the liquid or air flow during the operation, i.e., on the fly, to provide an indication of a malfunction. Specifically, Wolf does not teach or suggest the monitoring of the actual liquid or air flow rate in real time while the nozzles are in operation, and generating a malfunction signal when the actual liquid or air flow rate deviates from a calculated liquid or air rate by more than a maximum allowable error. Accordingly, the Wolf reference, even if combined with the other references, would still not teach or suggest the claimed invention.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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